

THE STATUS OF THE NAME *LASIOPETALUM* *TEPPERI* F. Muell. (STERCULIACEAE)

by

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ABSTRACT

Short, P. S. The status of the name *Lasiopetalum tepperi* F. Muell. (Sterculiaceae). *Muelleria* 6(1): 153-157 (1985). — Evidence is presented to show that the name *Lasiopetalum tepperi* F. Muell. applies to an interspecific hybrid taxon which is endemic in South Australia. As a nothospecies the taxon is referred to here as *Lasiopetalum* x *tepperi* F. Muell. (pro sp.). A lectotype is chosen for the name *L. tepperi* F. Muell.

INTRODUCTION

Five species of *Lasiopetalum* were recognized as occurring in South Australia by Black (1952). Of these, *L. schulzenii* (F. Muell.) Benth. is quite distinct from the others, having 1-2 bracteoles per flower, yellow petals and reflexed hairs on the style. The remaining species, *L. baueri* Steetz, *L. behrii* F. Muell, *L. discolor* Hook. and *L. tepperi* F. Muell. are closely related, all having 3 bracteoles per flower, red petals and a generally glabrous style. Within the latter group the status of *L. tepperi* is of particular interest.

Lasiopetalum tepperi was described by Mueller (1881) from a collection gathered by J. G. O. Tepper on Yorke Peninsula. Subsequent collections have shown the taxon to be restricted to Yorke Peninsula, Eyre Peninsula and Kangaroo Island, South Australia. In his original description of *L. tepperi* Mueller (1881: 110) stated "Proles forsitan hybrida, tunc orta e *L. discolor* et *L. Baueri*, quibus unico loco intercurrit, ut cl. inventor me regante nunc confirmat". That is, he suggested it was a taxon of hybrid origin, possibly derived from *L. discolor* and *L. baueri*, species with which, as ascertained by Tepper, it commonly grows. In a preface to a census of Australian plants Mueller (1882, p.viii) reiterated this belief, stating that "*Lasiopetalum Tepperi* would require to have its appellation changed into *Lasiopetalum Baueri* x *discolor*". However, for the purpose of the census "it was deemed best to admit . . . the very limited number of known bastards under ordinary specific rank".

In 1974 I examined the South Australian species of *Lasiopetalum* as part of a plant taxonomy course at the University of Adelaide and independently concluded that the name *L. tepperi* applies to a hybrid taxon. Furthermore, Jessop (1983), knowing of my work, referred to the taxon as *L. x tepperi* F. Muell., but without comment. The reasons for my conclusion are outlined below and a lectotype for the name *L. tepperi* F. Muell. is chosen.

MATERIALS AND METHODS

Pollen fertility and seed set of taxa of *Lasiopetalum* were initially estimated from specimens collected in mallee *Eucalyptus* scrub 5-6 km south-south-west of Port Julia, Yorke Peninsula. These populations are represented in the State Herbarium of South Australia (AD) by the following collections: *L. baueri* (P. Short 16), *L. behrii* (Barker 1784 & P. Short), *L. discolor* (Barker 851, Barker 1290 & R. Short, Barker 1783 & P. Short), *L. tepperi* (P. Short 3, P. Short 14). Subsequently other specimens housed in AD and in the National Herbarium of Victoria (MEL) were examined and measurements of leaf lamina, middle bracteole and calyx were made from selected specimens listed below. The collections selected for measurement came from throughout the geographical ranges of the taxa and were considered representative of the full range of morphological variation observed in each taxon.

Percentage pollen sterility was estimated by using double stain (phloxine and methyl green; Owczarzak 1952) or lactophenol cotton blue.

A scatter diagram (Fig. 1) has been used to illustrate the variation of some of the

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morphological attributes exhibited by taxa of *Lasiopetalum*. In the diagram averages (from usually six measurements) are plotted for ten or more individual collections of each taxon. The full range of variation observed in each character is expressed in Table I and, for some attributes, is displayed graphically in Fig. 1.

RESULTS

POLLEN STERILITY: Pollen sterility was estimated as being c. 98-100% in *L. tepperi*. In *L. baueri* and *L. behrii* it was c. 4% and in *L. discolor* c. 10%.

SEED SET: No specimens of *L. tepperi*, either examined in the field or on herbarium sheets, have been observed to set seed. All other taxa produce apparently viable seed.

MORPHOLOGY: Features which can be used to recognize the taxa of *Lasiopetalum* considered in this paper are leaf size and shape, the length of the middle bracteole compared to the length of the calyx segments, the number of flowers and their arrangement in an inflorescence and the presence or absence of a stellate indumentum on the inner surface of the calyx segments. In *L. tepperi* a number of these character states are intermediate between or are shared with those found in *L. baueri*, *L. behrii* and *L. discolor* (see Table I and Fig. 1).

Table 1. Morphological characteristics of four *Lasiopetalum* taxa. Extreme measurements are bracketed.

	<i>L. discolor</i>	<i>L. x tepperi</i>	<i>L. baueri</i>	<i>L. behrii</i>
Leaf shape	Ovate or sometimes ± elliptic. Base inconspicuously to conspicuously subcordate.	Ovate to lanceolate. Base inconspicuously to conspicuously subcordate.	± Narrowly elliptic or ± narrowly oblong. Base inconspicuously subcordate.	Lanceolate (rarely ovate), ± narrowly oblong or ± narrowly elliptic. Base inconspicuously subcordate.
Leaf lamina L (length) x W (width) (cm)	2.7(8) x 1.4-5(5.8)	(1.3)3-6(6.2) x 0.4-1(1.2)	2.7(8) x 0.2-0.75(1.25)	2.8(8.7) x 0.45-2(3.1)
Leaf lamina L : W ratio	1.3-2.5(2.9)	(2.6)3-6(6.7)	(4.7)5-12(13.1)	(2.6)3-8(8.4)
Length of middle bracteole (mm)	(5.5)6-8.5(9.2)	(2.8)3.5-7(7.7)	(1.4)1.6-2.8(3)	(1.6)2.2-4(4.5)
Length of calyx (mm)	(3.5)3.8-6.3(6.6)	(3.7)4-7(7.1)	(3.4)3.6-5.4(5.7)	(3.5)4-6.7(7.2)
Bracteole length: calyx length ratio	(1.26)1.5-1.8(2.4)	(0.64)0.94-1.2(1.3)	(0.34)0.4-0.6(0.85)	(0.35)0.4-0.8(0.95)
Colour of calyx	Mauve or pink.	Pink.	White to pink, base green.	White to pink.
Inner surface of calyx	Glabrous.	Moderately to densely hairy.	Moderately to densely hairy.	Glabrous or with some scattered hairs.
Number of flowers per inflorescence	(7)9-14(19) Compact.	(5)6-10(12) ± Crowded to open.	(1)2-4(6) ± Crowded to open.	(2)3-6(8) ± Crowded to open.

DISCUSSION AND CONCLUSIONS

The results clearly show that the name *L. tepperi* applies to an interspecific hybrid taxon, i.e., it is a nothospecies. The name of this nothospecies is *Lasiopetalum x tepperi* F. Muell.

L. baueri, *L. behrii* and *L. discolor* are all closely related taxa growing in the vicinity of *L. x tepperi* and must therefore all be considered as likely parental species. This contrasts with Mueller's above statement which did not mention *L. behrii* but this species is in fact commonly found on Yorke Peninsula. A note by J. H. Willis on a collection of *L. x*

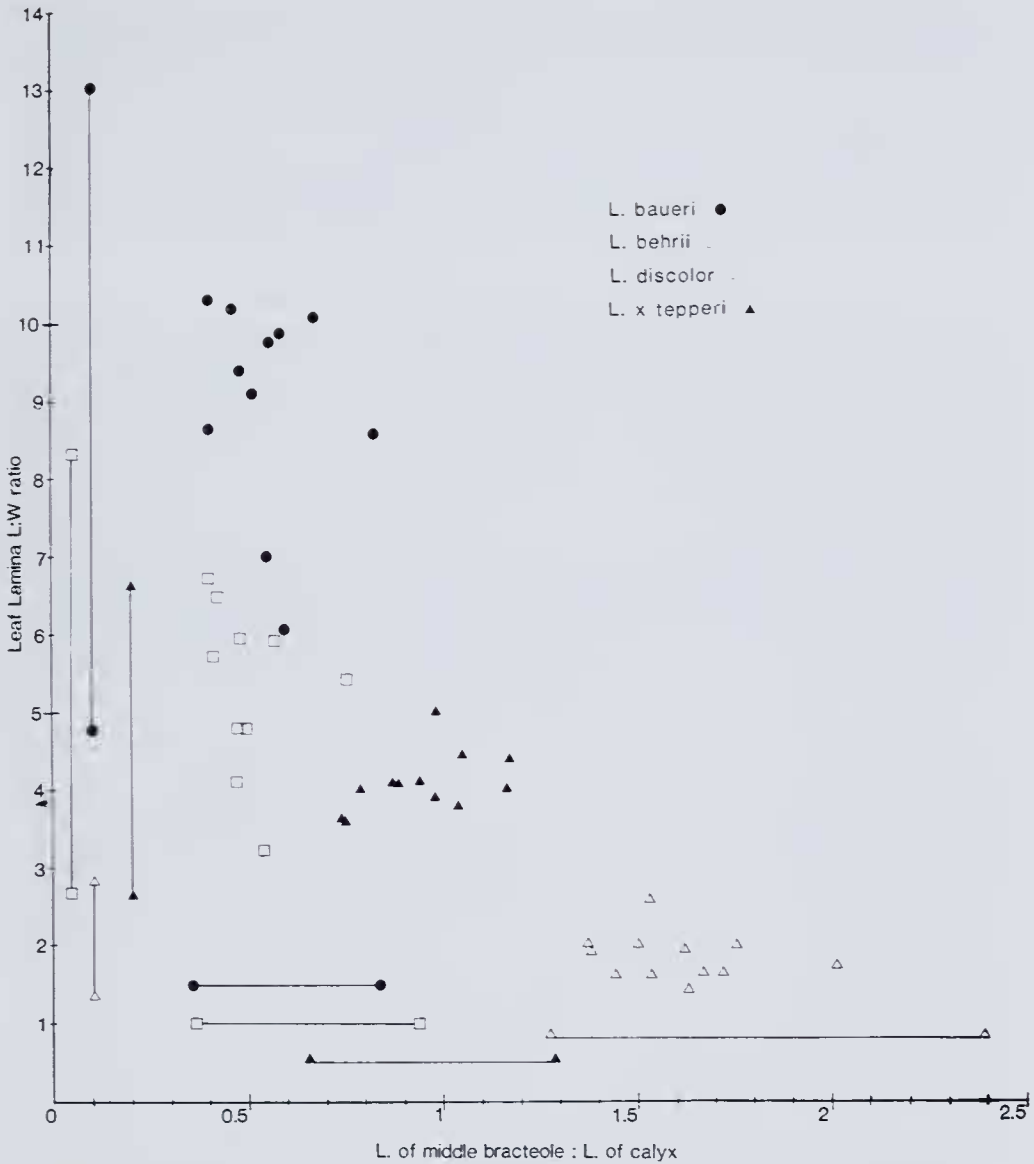


Fig. 1. Scatter diagram portraying some of the morphological variation seen in four taxa of *Lasiopetalum*.

tepperi (Wigan s.n., MEL 643171) from Kangaroo Island also indicates that *L. baueri* and *L. discolor* grow in the vicinity of the hybrid, thus suggesting them as possible parental species. However, *L. behrii* is also known to be quite common on Kangaroo Island. In my main study area near Port Julia all of the above species were common in the vicinity of *L. x tepperi*, with all taxa occasionally growing within approximately 10 metres of each other.

The summary of morphological attributes presented in Table 1 and Fig. 1 readily suggests that *L. discolor* must be one of the parental species of *L. x tepperi*. This is indirectly supported by the fact that both the hybrid taxon and *L. discolor* are absent from western Victoria although *L. behrii* and *L. baueri* are quite common there.

The other parental species is very much open to question. I suspect, as did Mueller, that *L. baueri* is most likely a parent but this places great importance on the hairy, inner

surface of the calyx segments in that species. This feature is usually absent from *L. behrii* and *L. discolor* but is prominent in *L. tepperi*. On the other hand the calyx segments of *L. behrii* occasionally possess a few scattered hairs on the inner surface and perhaps more importantly the leaf size and shape of *L. tepperi* are generally closer to that of *L. behrii* than *L. baueri*.

Characters such as the flavonoid chemistry and cytology of the respective taxa have not been examined. Such data are highly desirable as it seems impossible to unequivocally determine the parentage of *L. x tepperi* on macro-morphological grounds.

LECTOTYPIFICATION OF *L. TEPPERI* F. MUELL.

In his original publication of *L. tepperi* Mueller (1881: 109) gave the following information: "In vallibus paeninsulae Yorkii; Tepper". Type material of *L. tepperi* exists in both MEL and AD. With the exception of the few individual flowers from J. M. Black's herbarium, all specimens regarded as type or possible type material are of similar appearance, being in each case a small, profusely flowered branch. Only a single sheet exists in MEL. This sheet contains Mueller's manuscript notes and the specimen on it is here chosen as the lectotype.

LECTOTYPE (here designated): *Tepper s.n.*, Yorke Valley, Shrubs 4-5 ft. high, 1880 (MEL 643149). ISOLECTOTYPE: *Tepper s.n.*, Yorke's Peninsula, s. dat. (AD 97506360, ex herb. R. Tate, ex herb. MEL). POSSIBLE ISOLECTOTYPES: *Tepper s.n.*, Yorke Valley Hills, 1880 (AD 97506359, ex herb. R. Tate); *Tepper s.n.*, Yorke Valley Hills, s. dat. (AD 97618131, ex herb. J. M. Black, ex herb. R. Tate, fls only); *Tepper 1154*, Yorke Valley Hills, East of Mr. Wundersitz's Land, 1½ miles. Tall shrubs, bright rose, 9.ix.1880 (AD 97733526, ex herb. Field Naturalists S.A., ex herb. South Australian Museum).

The data pertaining to the lectotype and cited above were obtained from Tepper's handwritten label accompanying the specimen. A further label, in Mueller's hand, with the sheet gives the locality as "Yorke's Peninsula". This is the same locality given on a MEL label but in an unknown hand on the isolectotype from Professor Ralph Tate's herbarium. There seems no doubt that this collection was viewed by Mueller and subsequently acquired by Tate. Two further collections, regarded as possible isolectotypes, also come from Tate's herbarium (originally housed at the University of Adelaide). One of these, AD 97506359, has no indication that the material was seen by Mueller and there is doubt as to whether the specimen is from the same gathering as the lectotype. The specimen *Tepper 1154*, mounted along with *L. baueri* on a display sheet of "Ardrossan Plants" not only gives a collector's number but also more locality details. However, it appears to have been housed originally in Tepper's own herbarium (see Kraehenbuehl 1969) and it is not unlikely that such a specimen would be provided with information additional to that distributed to botanists such as Mueller and Tate. The remaining possible isolectotype originally from Tate's herbarium is a fragmentary specimen acquired by J. M. Black and used by him in the preparation of the 'Flora of South Australia'. The locality information suggests it is from the possible isolectotype sheet, AD 97506359.

SELECTED SPECIMENS EXAMINED

L. x tepperi (All collections excluding types)

South Australia — Copley 4556 (AD), Copley 4778 (AD), Eichler 14134 (AD), Ham s.n. (AD 96621297), Jackson 280 (AD), Jackson 347 (AD), Jackson 390 (AD), Jackson 399 (AD), Phillips s.n. (AD 96920317, MEL 650456), Quinn 20 (AD), P. Short 3 (AD), P. Short 14 (AD), Spooner 7358 (AD), Tepper s.n. (AD 97733529), Whibley 5523 (AD), Wigan s.n. (MEL 643171).

L. baueri (12/c.240).

South Australia — P. Short 16 (AD), Smith 37 (MEL), Wigan s.n. (MEL 643270).
Victoria — Baker s.n. (MEL 1503397), Beaglehole 43119 (MEL), Beaglehole 21415 & Fink (MEL), Mathieson s.n. (MEL 643269), Muir 5441 (MEL), Perry s.n. (MEL 532341), Wilson s.n. (MEL 650491).
Tasmania — Gee s.n. (MEL 2650490).
New South Wales — Phillips 4 (AD).

L. behrii (10/c.399)

South Australia — *Barker 1784 & P. Short* (AD), *Haegi 702* (AD, MEL), *Jackson 389* (AD), *Phillips s.n.* (MEL 643266, MEL 643275), *Story 8293* (MEL), *Thorne & Eichler s.n.* (MEL 643267), *Turner 5584* (MEL).
 Victoria — *Aston 1038* (MEL), *Corrick 6328* (MEL).

L. discolor (13/c.174)

Western Australia — *Willis s.n.* (MEL 643219).
 South Australia — *Barker 851* (AD), *Barker 1290 & R. Short* (AD), *Barker 1783 & P. Short* (AD), *Carroll s.n.* (MEL 643271), *Maiden s.n.* (MEL 643218), *Morrison s.n.* (MEL 515043), *Newman s.n.* (MEL 1011467), *Orchard 2547* (MEL), *Story 8291* (MEL).
 Victoria — ? *Tepper s.n.* (MEL 643216).
 Tasmania — *Whinray s.n.* (MEL 643272), *Whinray 1478* (MEL).

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